

osg roll: Users Guide



Open Science Grid

3.2.27 Edition



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Preface

The Rocks osg Roll uses the latest stable OSG Release to provide High Throughput Computing environment for Rocks clusters. The Rocks osg Roll builds on the very good work by the OSG team, to seamlessly install and configure the *de facto* standard grid middleware on Rocks Clusters.

- Cluster Planning: To understand the default value of some attributes, this roll roll assumes the following minimal partition scheme by default:

```
/          (reformatted at kickstart)
/var       (reformatted at kickstart)
/scratch   (a partition to host local dirs to be shared in cluster)
/hadoop     (a partition to be used by hadoop)
```

For any given CE node/server, if the partition intended for local dirs to share is NOT `"/scratch"`, then it can be set by using the rocks attr `"OSG_CE_Export_LocalDir"` to a desired value. For example we want to share local dirs located in `"/export"`, then use:

```
###global
#/opt/rocks/bin/rocks set attr OSG_CE_Export_LocalDir value="/export "
### or host specific
#/opt/rocks/bin/rocks set host attr login-0-0 OSG_CE_Export_LocalDir value="/export "
```

Similarly, to change the default partition/dir used by hadoop, require change in rocks attrs `OSG_HadoopDataDir` and/or `OSG_HadoopData`.

Please visit the Open Science Grid site¹ to learn more about their release and the individual software components.

Notes

1. <https://twiki.grid.iu.edu/bin/view/Documentation/Release3/>

Chapter 1. Overview

Table 1-1. Summary

Name	osg
Version	3.2.27
Maintained By	Rocks Group
Architecture	i386, x86_64
Compatible with Rocks®	3.2.27

The osg roll has the following requirements of other rolls. Compatability with all known rolls is assured, and all known conflicts are listed. There is no assurance of compatiblity with third-party rolls.

Table 1-2. Compatibility

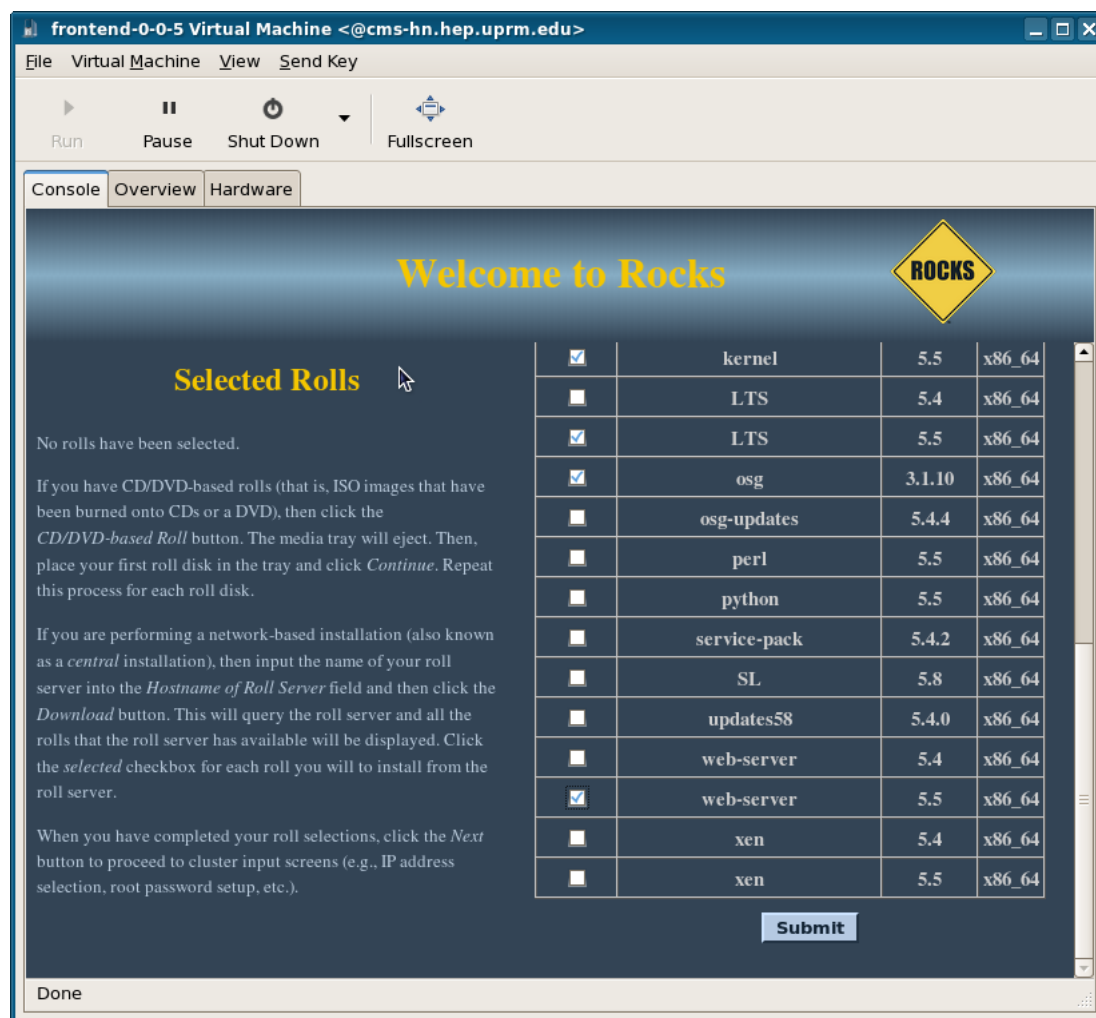
Requires	Conflicts
Base	
	Condor
Ganglia	
	Java
Kernel	
OS	

Chapter 2. Installing the osg Roll

The osg roll can be installed during the Frontend installation or added to a running frontend. In either case, client nodes must be (re)installed.

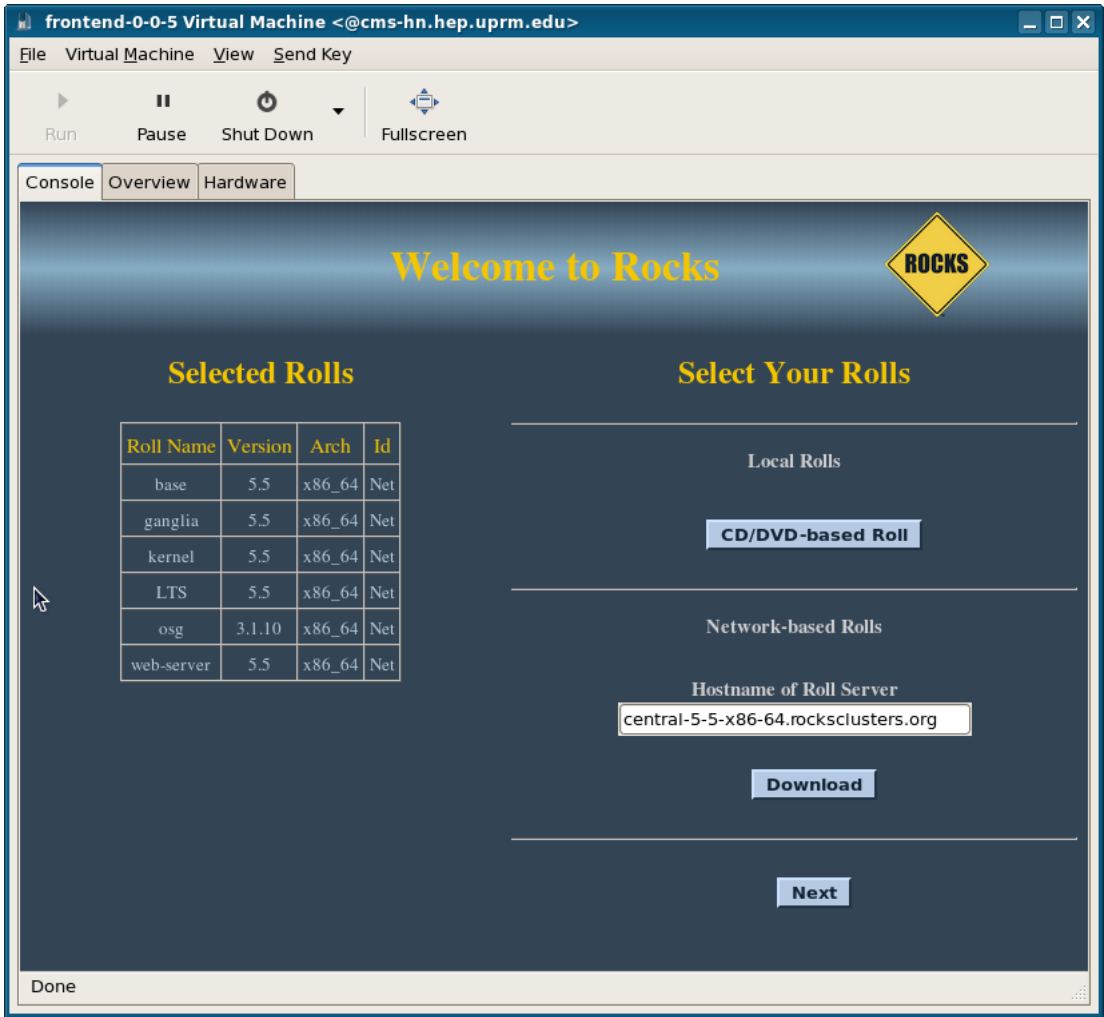
2.1. On a New Server

When the osg roll is installed during the initial installation of your server (or cluster), the procedure is documented in section 1.2 of Rocks® usersguide. You should reach a screen as shown below.



Remember conflicting rolls are HTCondor and Java.

Select the osg roll from the list of available rolls when you see a screen like shown below:



During the installation process, there will be two screens related to the osg roll. As shown below. The first to choose the default hadoop primary and secondary servers.

Welcome to Rocks

ROCKS

Help

OSG Hadoop Default Configuration

OSG Hadoop Name Node:
This is the default Hadoop Name Node

OSG Hadoop Secondary Node:
This is the default Hadoop Secondary Node

OSG Hadoop User ID (uid):
This is the default uid for hdfs user

OSG Hadoop group ID (gid):
This is the default gid for hadoop group

OSG MapReduce User ID (uid):
This is the default uid for mapred user

OSG MapReduce Group ID (gid):
This is the default uid for mapred group

OSG Hadoop Name Node

compute-0-0

OSG Hadoop Secondary Node

compute-0-1

OSG Hadoop User ID (uid)

458

OSG Hadoop group ID (gid)

409

OSG MapReduce User ID (uid)

461

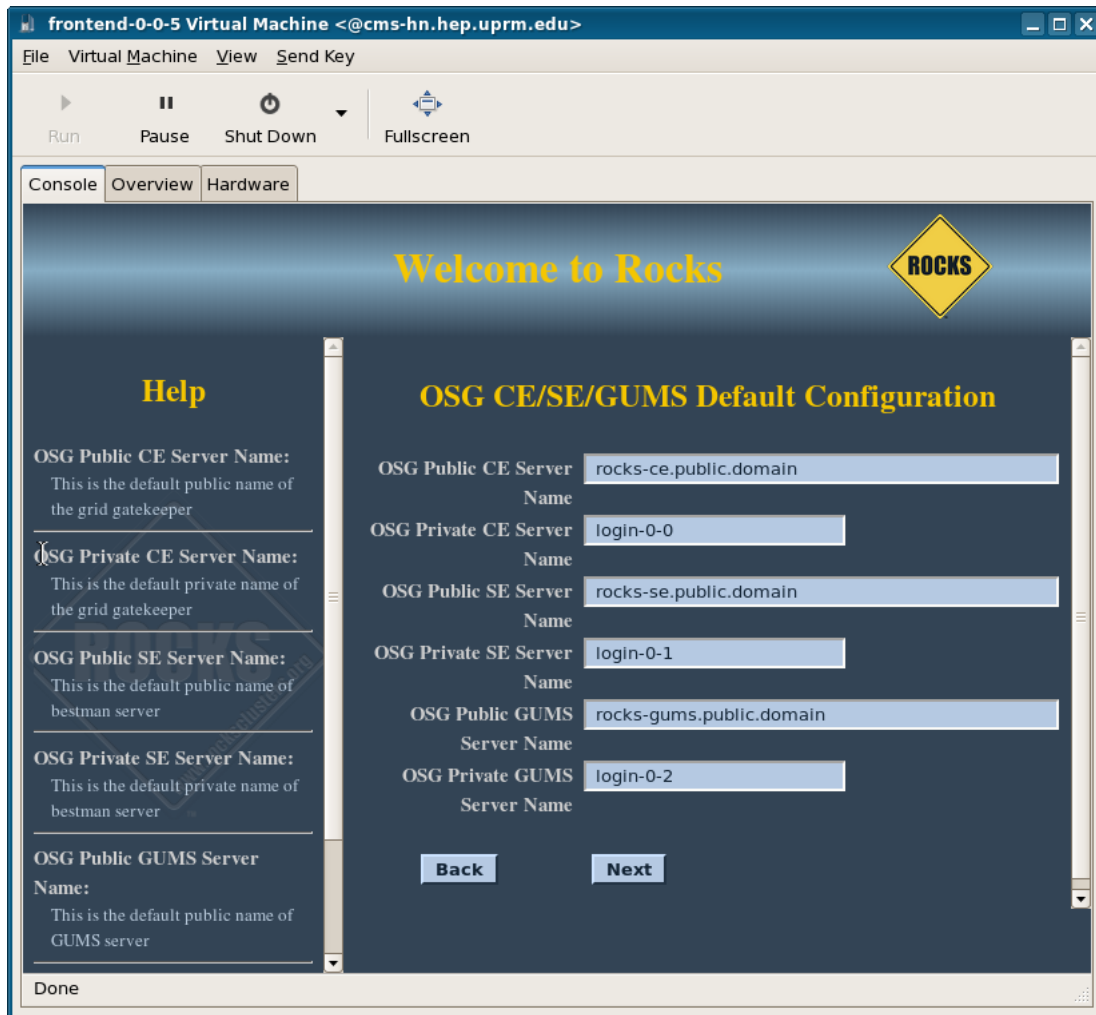
OSG MapReduce Group ID (gid)

461

Back

Next

The second to choose the default gridservers CE (gatekeeper), SE (bestman), GUMS servers.



If not sure leave it as is, these default can be changed later any time.

Once the osg roll is loaded the installer will continue installation automatically with no further user input.

Other appliances can be made part of the execution pool through setting an appliance attribute and reinstalling those nodes.

2.2. Install on Running System

The osg roll can be installed on a running system. The following assumes that roll is available in .iso form and is called "osg.iso".

```
$ su - root
# rocks add roll osg.iso
# rocks enable roll osg
# rocks create distro
# rocks run roll osg | bash
# shutdown -r now
```

Chapter 3. Customizing the OSG Roll -- Attributes

This chapter present the different attributes used by the OSG roll and the default values. The list of attributes is organized in tables according to its function.

By default, Hadoop, Condor and WorkerClient with glexec are installed on Rocks **compute** appliances, but services turned off. For more information see Customizing OSG packages to install.

3.1. Customizing user/group ID attrs

This section list the default OSG configuration value of attributes used to set uid/gid for system users/groups used by OSG packages.



Since Rocks 5.4.3 and beyond, by default Rocks uid<500 are not exported to nodes. However all gid are still exported.



In case of change of gid attr also requires manually change in /etc/group on frontend since groups are exported to nodes.



Change of **OSG_hdfsuid** requires additional manually change in /etc/passwd and /export/home/hadoop on frontend to correct ownership.

Table 3-1. Attributes Used in OSG Roll for userid/group customization (uid/gid)

Attribute Name	Description
OSG_condoruid	Configure uid for condor user. Created on Frontend. Default: 407
OSG_condorgid	Configure gid for condor user (group). Created on Frontend. Default: 407
OSG_hdfsuid	Configure uid for hdfs user. Created on Frontend. Default: 458
OSG_hadoopgid	Configure gid for hadoop group. Created on Frontend. Default: 409
OSG_mapreuid	Configure uid for mapred user (hadoop) . Default: 461
OSG_mapredgid	Configure gid for mapred group (hadoop). Created on Frontend. Default: 461
OSG_tomcatuid	Configure uid for tomcat user. Default: 91

Attribute Name	Description
OSG_tomcatgid	Configure gid for tomcat group. Created on Frontend. Default: 91
OSG_gratiauid	Configure uid for gratia user. Default: 464
OSG_gratiagid	Configure gid for gratia group. Created on Frontend. Default: 464
OSG_bestmanuid	Configure uid for bestman user. Default: 459
OSG_bestmangid	Configure gid for bestman group. Created on Frontend. Default: 410
OSG_xrootduid	Configure uid for xrootd user. Default: 460
OSG_xrootdgid	Configure gid for xrootd group. Default: 412
OSG_glexecuid	Configure uid for glexec user. Default: 463
OSG_glexecgid	Configure gid for glexec group. Created on Frontend. Default: 464
OSG_squiduid	Configure uid for squid user. Default: 450
OSG_squidgid	Configure gid for squid user (group). Default: 450
OSG_cvmfsuid	Configure uid for cvmfs user. Default: 470
OSG_cvmfsgid	Configure gid for cvmfs user (group). Default: 470
OSG_fusegid	Configure gid for fuse group. Default: 408
OSG_rsvuid	Configure uid for rsv user. Default: 452
OSG_rsvgid	Configure gid for rsv group. Created on Frontend. Default: 452
OSG_cndrcronuid	Configure uid for cndrcron user (condor cron). Default: 466
OSG_cndrcrongid	Configure gid for cndrcron group (condor cron). Created on Frontend. Default: 467

3.2. Customizing install ('triggers') attrs

By default, Hadoop, Condor and WorkerClient with glexec are installed on Rocks **compute** appliances, while Gridftp and gatekeeper server **are ready** to install on **login-0-0** host and Gridftp hadoop and bestman2 **are ready** to install on **login-0-1** host.

For Rocks 5.4 and newer, the OSG roll makes use of *attributes* to enable install of Hadoop, Condor, WorkerClient with glexec, Bestman2 server (SE), gridftp server, hdfs gridftp server, gatekeeper server (CE), squid server, gums server and cvmfs to be installed on any host or appliance. This may be particularly useful to groups who are including the Xen/KVM roll and would like OSG servers to install on VM Container appliances.

Table 3-2. Attributes Used in OSG Roll for packages install ('triggers')

Attribute Name	Description
OSG_Condor_Client	Enable/Disable Condor Installation on any particular Appliance or Host. Default: true (on compute appliance)

Attribute Name	Description
OSG_Client	Enable/Disable OSG Client installation on any particular Appliance or Host. Install includes hadoop and glxexec. Default: true (on compute appliance)
OSG_CE	Enable/Disable Gatekeeper installation on any particular Appliance or Host. Install includes hadoop (and condor if OSG_CE set to "condor"). Depending on the cluster scheduler acceptable values are "condor", "sge." If default configuration is kept (login-0-0 as CE), then it is needed to set OSG_CE to "condor" or "sge" on login-0-0. No Default.
OSG_SE	Enable/Disable bestman-server installation on any particular Appliance or Host. Install includes hadoop. If default configuration is kept (login-0-1 as SE), then it is needed to set OSG_SE to 'true' on login-0-1. No Default.
OSG_GRIDFTP	Enable/Disable gridftp server installation on any particular Appliance or Host. If default configuration is kept (login-0-0 as classic gridftp server), then it is needed to set OSG_GRIDFTP to 'true' on login-0-0. No Default.
OSG_GFTP_HDFS	Enable/Disable hadoop gridftp server installation on any particular Appliance or Host. Install includes hadoop. If default configuration is kept (login-0-1 as hdfs gridftp server), then it is needed to set OSG_GFTP_HDFS to 'true' on login-0-1. No Default.
OSG_HADOOP	Enable/Disable hadoop installation on any particular Appliance or Host. Not needed if set already OSG_Client or OSG_SE or OSG_GFTP_HDFS or OSG_CE on the node. No Default.
OSG_XRD	Enable/Disable xrootd server installation on any particular Appliance or Host. No Default.
OSG_RSV	Enable/Disable rsv installation on any particular Appliance or Host. No Default.
OSG_GUMS	Enable/Disable gums server installation on any particular Appliance or Host. No Default.
OSG_SQUID	Enable/Disable squid server installation on any particular Appliance or Host. No Default.
OSG_CVMFS	Enable/Disable cvmfs installation on any particular Appliance or Host. No Default.

3.3. Customizing Hadoop

By default Hadoop is installed on Rocks **compute** appliances.

Table 3-3. Attributes Used in OSG Roll for Hadoop customization

Attribute Name	Description
OSG_HadoopNameNode	Configure Hadoop NameNode server name used on any particular Appliance or Host installation. Check for a line like this: HADOOP_NAMENODE=compute-0-0 in /etc/sysconfig/hadoop Default: compute-0-0
OSG_HadoopSecondaryNode	Configure Hadoop SecondaryName server name used on any particular Appliance or Host installation. Check for a line like this: HADOOP_SECONDARY_NAMENODE=compute-0-1 in /etc/sysconfig/hadoop Default: compute-0-1
OSG_HadoopDataDir	Configure Hadoop base data dir used on any particular Appliance or Host installation. Check for a line like this: HADOOP_DATADIR=/hadoop in /etc/sysconfig/hadoop Default: /hadoop
OSG_HadoopData	Configure Hadoop data dir used on any particular Appliance or Host installation. Check for a line like this: HADOOP_DATA=/hadoop/data in /etc/sysconfig/hadoop Default: /hadoop/data
OSG_HadoopCheckPointDirs	Configure Hadoop check point dirs used on any particular Appliance or Host installation. Check for a line like this: HADOOP_CHECKPOINT_DIRS=/home/hadoop,/scratch/hadoop in /etc/sysconfig/hadoop Default: /home/hadoop,/scratch/hadoop
OSG_HadoopCheckPointPeriod	Configure Hadoop check point period used on any particular Appliance or Host installation. Check for a line like this: HADOOP_CHECKPOINT_PERIOD=600 in /etc/sysconfig/hadoop Default: 600
OSG_HadoopUpdateFstab	Configure Hadoop for update fstab used on any particular Appliance or Host installation. Check for a line like this: HADOOP_UPDATE_FSTAB=1 in /etc/sysconfig/hadoop Default: 1

3.4. Customizing Condor

By default Condor is installed on Rocks **compute** appliances and frontend. Attributes are inspired on the original Condor roll.

Table 3-4. Attributes Used in OSG Roll for Condor Customization

Attribute Name	Description
----------------	-------------

Attribute Name	Description
OSG_Condor_Master	Redefine the Condor Master that nodes use. Default: public frontend name
OSG_Condor_Network	Define which network interface is used for Condor traffic. Default: frontends are set to public, clients are set to private.
OSG_Condor_Daemons	Define which Condor execution daemons are installed. Default: [MASTER (global)], [MASTER, SCHEDD, COLLECTOR, NEGOTIATOR (frontends)], [MASTER, SCHEDD (login appliance)], [MASTER, STARTD (compute appliance)]
OSG_Condor_PortLow	Lower Port range that Condor will use to communicate among daemons. Removal of this Attribute will result in removal of the LOWPORT entry in 01_rocks_condor_config.local after syncing the configuration. Default: 40000
OSG_Condor_PortHigh	Upper Port range that Condor will use to communicate among daemons. Removal of this Attribute will result in removal of the HIGHPORT entry in 01_rocks_condor_config.local after syncing the configuration. Default: 50000
OSG_Condor_HostAllow	Comma separates list of allowed readers/writers for Condor. Translates to HOSTALLOW directive in Condor Configuration file. Default: + rocks-ce
OSG_Condor_PasswordAuth	Use a shared pool password, instead of host-based authentication. Default: no.
OSG_Condor_EnableMPI	Configure a local scheduler for MPI Universe Support. Default: no
OSG_Condor_EnableAMAZON_EC2	Configure a local scheduler for AMAZON_EC2 Support. Default: no
OSG_Condor_EnableT3GRID_SUBMIT	Configure a local grid submitter for interactive nodes (I use to called it CRAB submit). Default: no
OSG_Condor_EnableT3GRID_CMSSW	Configure a local compute nodes for CMS jobs. (See /opt/rocks/lib/python2.6/site-packages/rocks/commands/report/host/osg/condor/config/plugin_t3cmssw Default: yes
OSG_Condor_Multicore	Configure condor slots as partitionable slots, suitable for multicore jobs. It requires restart condor daemon (See /opt/rocks/lib/python2.6/site-packages/rocks/commands/report/host/osg/condor/config/plugin_dynamic Default: no (accept yes/true to enable it).
OSG_Condor_RANK	Configure condor rank on nodes (set RANK in condor_config), suitable for heterogeneous cluster. (See /opt/rocks/lib/python2.6/site-packages/rocks/commands/report/host/osg/condor/config/plugin_rank.py Default: no (uses 0 for executables if not defined.)

Attribute Name	Description
OSG_NEGOTIATOR_INTERVAL	Reconfigure negotiator interval. (See /opt/rocks/lib/python2.6/site-packages/rocks/commands/report/host/osg/condor/config/plugin_osg_negotiator.py) Default: no default, but use 60 (seconds) if not defined.

3.5. Customizing common Cluster grid attrs

Common attributes are used on **compute** appliances, CE, SE, GUMS, CVMFS and XRootD servers.

Table 3-5. Attributes Used in OSG Roll for common Cluster Customization

Attribute Name	Description
OSG_GlobusPortRange	Configure Globus Port Range used on any particular Appliance or Host installation. This entry is used for setting iptable firewall on grid servers. Default: 20000:25000
OSG_GlobusTcpPortRange	Configure Globus TCP Port Range used on any particular Appliance or Host installation. This entry is used for setting GLOBUS_TCP_PORT_RANGE on grid servers. (note change : by , compared with OSG_GlobusPortRange) Default: 20000,25000
OSG_GlobusTcpSourceRange	Configure Globus TCP Source Range used on any particular Appliance or Host installation. This entry is used for setting GLOBUS_TCP_SOURCE_RANGE on grid servers. (note change : by , compared with OSG_GlobusPortRange) Default: 20000,25000
OSG_StoredCertsDir	Set Base Dir where grid certs are stored for Appliance or Host installation. During installation of CE or SE hostcert.pem and hostkey.pem are copied to /root. Default: /root/certs
OSGCEPrivate	Configure which cluster node is the Grid gatekeeper server node (private domain). Used as memory which node is acting as gatekeeper server. Default: login-0-0
OSGSEPrivate	Configure which cluster node is the bestman server node (private domain). Used as memory which node is acting as bestman server. Default: login-0-1
OSGGUMSPRivate	Configure which cluster node is the gums server node (private domain). Used as memory which node is acting as gums server. Default: login-0-2

Attribute Name	Description
OSG_GumsServer	Configure Gums server name used on any particular Appliance or Host installation. Needed to configure authentication for gridusers in <code>/etc/lcmaps.db</code> . Also used to fill <code>gums_host</code> (in <code>/etc/osg/config.d/10-misc.ini</code>) and <code>gums_hosts</code> (in <code>/etc/osg/config.d/30-rsv.ini</code>) Default: <code>rocks-gums.&Kickstart_PublicDNSDomain</code> ; (<code>rocks-gums.public.domain</code> on a New Cluster Server install)
OSG_SEServer	Configure bestman server public name used on any particular Appliance or Host or bestman server installation. Used to match info in <code>/boot/install_cert_se.sh</code> as condition before try installing grid-certs. Also used in configuring CE server to fill <code>site_read</code> and <code>site_write</code> (in <code>/etc/osg/config.d/10-storage.ini</code>). Default: <code>rocks-se.&Kickstart_PublicDNSDomain</code> ; (<code>rocks-se.public.domain</code> on a New Cluster Server install)
OSG_CMS_LOCAL_SITE	Configure <code>CMS_LOCAL_SITE</code> for <code>cvmfs</code> and <code>xrootd</code> . Default: <code>"T3_US_PuertoRico"</code>

3.6. Customizing CE (Gatekeeper) attrs

Attributes used to configure CE Server.

Table 3-6. Attributes Used in OSG Roll CE Customization

Attribute Name	Description
OSG_SquidServer	Configure squid server name used by cluster. Used to fill information 'location' in <code>/etc/osg/config.d/01-squid.ini</code> on CE nodes. Default: no
OSG_GFTPServer	Configure gridftp server name (non-hdfs or hdfs) used on any particular Appliance or Host installation. Used to fill information in <code>/etc/osg/config.d/30-gip.ini</code> (<code>gsiftp_host</code>) on CE nodes. Default: <code>rocks-ce.&Kickstart_PublicDNSDomain</code> ;

Attribute Name	Description
OSG_CEServer	Configure Grid gatekeeper server public name used on any particular Appliance or Host or gatekeeper installation. Used to match info in /boot/install_cert_ce.sh as condition before try installing grid-certs. Also used to fill information 'job_contact' and 'util_contact' in /etc/osg/config.d/20-condor.ini (or /etc/osg/config.d/20-sge.ini). Default: rocks-ce.&Kickstart_PublicDNSDomain; (rocks-ce.public.domain on a New Cluster Server install)
	gip attributes to fill /etc/osg/config.d/30-gip.ini
OSG_CE_gip_multiclustert	Number of clusters. If not set assumes 1.
OSG_CE_gip_SubCluster1	Subcluster id, used to fill '[Subcluster id-fill-here]' If not set, uses cluster attribute "Info_ClusterName"
OSG_CE_gip_ClusterName1	Subcluster name, used to fill cluster 'name' parameter. If not set, uses cluster attribute "Info_ClusterName"_CE_1
OSG_CE_gip_NumberOfNodes1	Subcluster number of nodes, used to fill cluster 'node_count' parameter. If not set, uses number of compute nodes (at least 1).
OSG_CE_gip_mb_of_Ram1	Subcluster RAM info, used to fill cluster 'ram_mb' parameter. If not set, uses RAM from CE.
OSG_CE_gip_cpu_model1	Subcluster cpu model, used to fill cluster 'cpu_model' parameter. If not set, uses cpu model from CE.
OSG_CE_gip_cpu_vendor1	Subcluster cpu vendor, used to fill cluster 'cpu_vendor' parameter. If not set, uses cpu vendor from CE.
OSG_CE_gip_cpu_speed1	Subcluster cpu speed, used to fill cluster 'cpu_speed_mhz' parameter. If not set, uses cpu speed from CE.
OSG_CE_gip_arch1	Subcluster arch, used to fill cluster 'cpu_platform' parameter. If not set, uses arch from roll base.
OSG_CE_gip_CpusPerNode1	Subcluster number of cpus per node, used to fill cluster 'cpus_per_node' parameter. If not set, uses number of cpus from CE.
OSG_CE_gip_CoresPerNode1	Subcluster number of cores per node, used to fill cluster 'cores_per_node' parameter. If not set, uses number of cores from CE.
OSG_CE_gip_inbound1	Subcluster inbound network, used to fill cluster 'inbound_network' parameter. If not set, uses FALSE.
OSG_CE_gip_outbound1	Subcluster outbound network, used to fill cluster 'outbound_network' parameter. If not set, uses TRUE.

Attribute Name	Description
OSG_CE_gip_allowed_vos1	Subcluster allowed VOs, used to fill cluster 'allowed_vos' parameter. If not set, leave it blank (i.e. accept all VOs). In a second cluster (OSG_CE_gip_allowed_vos2) or more, if not set uses 'osg, cms' as default.
OSG_CE_gip_max_wall_time1	Subcluster max wall time, used to fill cluster 'max_wall_time' parameter. If not set, uses 1440. (Corresponding to 24 hour in minutes).
OSG_CE_gip_NmultiSE	Number of SE servers asociated to CE No default.
OSG_CE_gip_SE1	SE id, used to fill '[SE if-fill-here]'. No Default.
OSG_CE_gip_SE_OIM_Name1	SE OIM Name, used to fill 'name'. No Default.
OSG_CE_gip_SEServer1	SE Name (fqdn) needed to fill 'srm_endpoint'. If not set, it will try 'OSG_SE_Server'
OSG_CE_gip_SEprovider1	SE provider implemetation. Used to fill 'provider_implementation'. If not set, it will try 'bestman'
OSG_CE_gip_SEimplementation1	SE provider implemetation. Used to fill 'implementation'. If not set, it will try 'bestman'
OSG_CE_gip_SEversion1	SE version. Used to fill 'version'. No default.
OSG_CE_gip_SEpath1	SE default path. Used to fill 'default_path'. No default.
OSG_CE_gip_SE_use_df	SE flag to set df. Used to fill 'use_df'. If not set, will try 'True'
	site info attributes to fill <code>/etc/osg/config.d/40-siteinfo.ini</code>
OSG_CE_siteinfo_group	CE siteinfo to set group if different from OSG. Used to fill 'group'. If not set, will leave 'OSG'
OSG_CE_siteinfo_OIM_name	CE siteinfo to set resource. Used to fill 'resource'. It must be the registered OIM name for the resource. (See https://oim.grid.iu.edu/oim/home). If not set, will leave 'UNAVAILABLE'
OSG_CE_siteinfo_OIM_group	CE siteinfo to set resource_group. Used to fill 'resource_group'. It must be the registered OIM group for the resource group. (See https://oim.grid.iu.edu/oim/home). If not set, will leave 'UNAVAILABLE'
OSG_CE_siteinfo_sponsor	CE siteinfo to set sponsor. Used to fill 'sponsor'. If not set, will leave 'UNAVAILABLE'
OSG_CE_siteinfo_policy	CE siteinfo to set policy. Used to fill 'site_policy'. It is expected to set web link to site policy. If not set, will leave 'UNAVAILABLE'
OSG_CE_siteinfo_contact	CE siteinfo to set contact name for the site. Used to fill 'contact'. Your sysadmin name should go here. If not set, will leave 'UNAVAILABLE'

Attribute Name	Description
OSG_CE_siteinfo_email	CE siteinfo to set contact email for the site. Used to fill 'email'. Your sysadmin email should go here. If not set, will leave 'UNAVAILABLE'
OSG_CE_siteinfo_city	CE siteinfo to set city location for the site. Used to fill 'city'. Your site city should go here. If not set, will try using rocks attr '&Info_CertificateLocality;' before giving up for 'UNAVAILABLE'
OSG_CE_siteinfo_country	CE siteinfo to set country location for the site. Used to fill 'country'. Your site country should go here. If not set, will try using rocks attr '&Info_CertificateCountry;' before giving up for 'UNAVAILABLE'
OSG_CE_siteinfo_longitude	CE siteinfo to set longitude coordinates for the site. Used to fill 'longitude'. Your site longitude coordinate should go here. If not set, will try using rocks attr '&Info_ClusterLatlong;' before giving up for 'UNAVAILABLE'
OSG_CE_siteinfo_latitude	CE siteinfo to set latitude coordinates for the site. Used to fill 'latitude'. Your site latitude coordinate should go here. If not set, will try using rocks attr '&Info_ClusterLatlong;' before giving up for 'UNAVAILABLE'

3.7. Customizing SE (Bestman) attrs

Attributes used to configure SE Server.

Table 3-7. Attributes Used in OSG Roll SE Customization

Attribute Name	Description
OSG_SRMlocalPathListAllowed	Configure localPathListAllowed used on any particular Appliance or Host installation of bestman server. Check for a line like this: localPathListAllowed=/mnt/hadoop;/data/se in /etc/bestman2/conf/bestman2.rc Default: /mnt/hadoop;/data/se
OSG_SRMsupportedProtocolList	Set supportedProtocolList used on any particular Appliance or Host installation of bestman server. This is the default gridftp server. Check for a line like this: gsiftp://rocks-ce.&Kickstart_PublicDNSDomain;;2811 in /etc/bestman2/conf/bestman2.rc Default: gsiftp://rocks-ce.&Kickstart_PublicDNSDomain;;2811

Attribute Name	Description
OSG_SRMuseplugging	Setting "True" allow the use of plugin RoundRobinWithPath. By modifying <code>/etc/bestman2/conf/bestman2.rc</code> accordingly. The plugin uses <code>/usr/share/java/bestman2/plugin/gsiftp.servers.txt</code> to read the list of gridftp servers. Default: no

3.8. Customizing WN OSG Client attrs

Attributes used to configure Worker/Interactive nodes (after install of `osg-wn-client-glexec`).

Table 3-8. Attributes Used in OSG Roll WN/Interactive Customization

Attribute Name	Description
OSG_Client	Triggers (Enable/Disable) OSG Client installation on any particular Appliance or Host. Install includes hadoop and glexec. Default: true (on compute appliance)
OSG_wn_Cacert	Attribute to set the type of cacert dir to use. Possible values are: <code>own</code> , <code>linkCVMFS</code> and <code>linkCE</code> . Default: <code>linkCE</code>
OSG_wn_LcmapsCertType	Set type of certificate to be used in configuring <code>/etc/lcmaps.db</code> . Possible values are: <code>proxy</code> , <code>pilot</code> and <code>cert</code> . Default: <code>proxy</code> (if attr not defined)/ <code>cert</code> (if attr defined but non proxy nor pilot).
OSG_wn_StartGIDGlexecGroup	Starting gid value in a list of glexec group Default: 65000 (if not defined).
OSG_wn_numberGIDsGlexec	Number elements in list of glexec group Default: 50 (if not defined).

3.9. Customizing GUMS attrs

Attributes used to configure GUMS Server.

Table 3-9. Attributes Used in OSG Roll GUMS Customization

Attribute Name	Description
OSG_GUMSBackupDir	Configure the directory in which is located the backup config files and database for gums. Default: <code>/path/to/gums/backup</code>

Attribute Name	Description
OSG_GUMSDNADMIN	Configure the admin DN for gums used in the configuration scripts. Default: /DC=org/DC=doegrids/OU=People/CN=Name M LastName 123456
OSG_GUMSRunScript	Attribute to automatically run configuration script after install. Two possible values are 'FreshInstall' and 'UpgradeFromRPM'. NO Default (no run by default).

3.10. Customizing CVMFS attrs

Attributes used to configure cvmfs.

Table 3-10. Attributes Used in OSG Roll CVMFS Customization

Attribute Name	Description
OSG_CVMFS_REPOSITORIES	Configure CVMFS_REPOSITORIES for cvmfs. Default: cms.cern.ch
OSG_CVMFS_CACHE_BASE	Configure CVMFS_CACHE_BASE for cvmfs. Default: "/var/cache/cvmfs"
OSG_CVMFS_QUOTA_LIMIT	Configure CVMFS_QUOTA_LIMIT for cvmfs (in MB). Default: 10000
OSG_CVMFS_HTTP_PROXY	Configure CVMFS_HTTP_PROXY for cvmfs. Default: "http://login-0-2:3128"
OSG_CMS_LOCAL_SITE	Configure CMS_LOCAL_SITE for cvmfs. Default: "T3_US_PuertoRico"

3.11. Customizing Squid attrs

Attributes used to configure frontier squid.

Table 3-11. Attributes Used in OSG Roll Frontier Squid Customization

Attribute Name	Description
OSG_SquidCacheMem	Set squid cache memory. If not set rocks command will set to '512 MB'. Rpm install default is '128 MB'. Default: none
OSG_SquidCacheDir	Set squid cache dir. If not set will use '/var/cache/squid' Default: none
OSG_SquidCacheDirSize	Set cache dir size.If not set will use '10000' (10GB). Default: none

3.12. Customizing XRootD attrs

Attributes used to configure XRootD.

Table 3-12. Attributes Used in OSG Roll XRootD Customization

Attribute Name	Description
OSG_XROOTD_LOCAL_REDIRECTOR	Configure your local redirector for xrootd. If not running local redirector leave default (This is a direct subscription to regional redirector). It requires request to be whitelisted. Default: cms-xrd-transit.cern.ch+
OSG_XROOTD_REGIONAL_REDIRECTOR	Configure a local redirector for xrootd. This method requires to set here your subscription to your regional redirector. Default: none
OSG_XRDServer	Configure xrootd server public name used on any particular Appliance or Host or xrootd server installation. Used to match info in /boot/install_cert_xrootd.sh as condition before try installing grid-certs. Default: None
OSG_CMS_LOCAL_SITE	Configure CMS_LOCAL_SITE for xrootd. Default: "T3_US_PuertoRico"

3.13. Customizing RSV attrs

Attributes used to configure rsv.

Table 3-13. Attributes Used in OSG Roll RSV Customization

Attribute Name	Description
OSG_rsvuid	Configure uid value for rsv user. Default: 5452
OSG_rsvgid	Configure gid value for rsv group. Default: 5452
OSG_cndrcronuid	Configure uid value for condor cron user "cndrcron". Default: 466
OSG_cndrcrongid	Configure gid value for condor cron group "cndrcron". Default: 467
OSG_RSV_Port	Configure RSV Web port. Default: 80
OSG_RSV_SPort	Configure RSV Secure Web port. Default: 443
OSG_RSVGFTPList	Configure in RSV list of gridftp servers (comma separated). No default. If not defined, try content of rocks attr OSG_GFTPServer.

Attribute Name	Description
OSG_RSFSRMTestDir	Configure RSV srm_dir in case there is a SRM Server to probe. This should be the directory used to probe. No default.

Chapter 4. Customizing the OSG Roll

This chapter describes some simple customizations that can be applied to the OSG roll in Rocks with version ≥ 5.4

A basic customization can be applied without any scripting/programming just by setting global, appliance, or host attributes and then kickstarting a node.

Customization can be done also through rocks commands, after setting attributes. Please see the commands `rocks set attr help`, `rocks list attr help` and examples in this chapter.

4.1. Examples of Hadoop Configuration

The following are short examples of how to customize Hadoop using Rocks commands.

- Change default Hadoop Node Name on all compute Appliances: `rocks set appliance attr compute OSG_HadoopNameNode value=hadoop-0-0`
- Change default Hadoop Secondary Name on all compute Appliances: `rocks set appliance attr compute OSG_HadoopSecondaryNode value=hadoop-0-1`
- Change default Hadoop Data Dir on all compute Appliances, for example two data disks: `rocks set appliance attr compute OSG_HadoopData value="/hadoop/data,/hadoop2/data"`

4.2. How to set new Gums server

The following are short examples of how to customize gums server using Rocks commands before kickstarting.

- Change default Gums server Name on all compute Appliances: `rocks set appliance attr compute OSG_GumsServer value="my-gums.my.edu."`
- Change default Gums server Name on a host: `rocks set host attr se-0-0 OSG_GumsServer value="my-gums.my.edu."`
- Change default Gums server Name global: `rocks set attr OSG_GumsServer value="my-gums.myglobal.edu."`

4.3. How to set Default Gridftp server used for Bestman

The following are short examples of how to customize default gridftp server using Rocks commands.

- Change default Gridftp server Name global: `rocks set attr OSG_SRMsupportedProtocolList value="gsiftp://mygridftp.my.edu:2811"`

4.4. Examples of Condor Configuration

The following are short examples of how to customize Condor using Rocks commands.

- Enable Condor install on all VM-Containers Appliances: `rocks add appliance attr vm-container OSG_Condor_Client true`
- Disable Condor install on particular node: `rocks set host attr compute-0-0 OSG_Condor_Client false`
- Define a New Condor Master: `rocks set attr OSG_Condor_Master central-master.my.edu`
- Enable MPI/Dedicated Scheduler: `rocks set attr OSG_Condor_EnableMPI true.`

Actively-running Condor daemons must be reconfigured for this attribute to take affect. This can be achieved dynamically on compute and frontend appliances using `rocks sync host osg condor frontend compute.`

Reinstalled nodes will build the correct configuration.

4.5. Reconfiguring CE/gatekeeper

A primitive configuration of CE is done during the install, the resulting configuration files are located in `/etc/osg/config.d` and is based on available information at install. To reconfigure a CE node changes on the ini files located in `/etc/osg/config.d` is needed followed by running the command `osg-configure -c`. This part is automatized by running the command

```
# rocks sync host osg CE <hostname>
```

This will rewrite `10-misc.ini`, `10-gateway.ini`, `10-storage.ini`, `15-managedfork.ini`, `20-condor.ini` (or `20-sge.ini`), `30-gip.ini`, `40-network.ini`, `40-siteinfo.ini` and run the `osg` command `/usr/sbin/osg-configure -c`



To view the script of changes for the ini files before making changes, use `rocks report host osg CE config <hostname>`



To generate the script, login on the CE node and run `rocks report host osg CE config <hostname> | rocks report script | bash` the output script will be written in `/root/CE_ini_filesConfigurator`

In case CE was not installed at kickstart, it is possible to install in a node or appliance after kickstart by setting `OSG_CE` to a given scheduler (in this example "condor") on a host or appliance and then syncing as shown below

```
# rocks set host attr <hostname> OSG_CE value=condor
```

```
# rocks sync host osg CE install <hostname>
```

To find information about CE configuration please see the OSG documentation at OSG twiki page¹.

4.6. Reconfiguring SE/bestman

A initial configuration of Bestman server is done during the kickstart install, the resulting configuration files are `/etc/bestman2/conf/bestman2.rc` and `/etc/sysconfig/bestman2`. This configuration is based on available information at install. To reconfigure a bestman node after changes on any attribute that build those files requires rebuild the configuration by running the rocks command.

```
# rocks sync host osg bestman <hostname>
```

This will rewrite `/etc/bestman2/conf/bestman2.rc`, `/etc/sysconfig/bestman2`,



To view the script of changes for the files before making changes, use `rocks report host osg bestman config <hostname>`



To generate the script, login on the Bestman node and run `rocks report host osg bestman config <hostname> | rocks report script | bash` the output script will be written in `/root/BestmanConfigurator`

In case Bestman was not installed at kickstart, it is possible to install in a node or appliance after kickstart by setting `OSG_SE` to true on a host or appliance and then syncing as shown below

```
# rocks set host attr <hostname> OSG_SE value=true
# rocks sync host osg bestman install <hostname>
```

To find information about bestman configuration please see the OSG documentation at OSG twiki page².

4.7. Reconfiguring WN OSG Client

A initial configuration of Worker nodes is done during the kickstart install, the resulting configuration dir/files are `/etc/grid-security/certificates` and `/etc/lcmaps.db`. This configuration is based on available information at install. To reconfigure a Worker/Interactive node after changes on any attribute that build those files requires rebuild the configuration by running the rocks command.

```
# rocks sync host osg wnclient <hostname>
```

This will re-make link of /etc/grid-security/certificates, and rewrite /etc/lcmaps.db and /etc/fetch-crl.d/osg-roll.conf



To view the script of changes for the files before making changes, use `rocks report host osg wnclient config <hostname>`



To generate the script, login on a Worker node and run `rocks report host osg wnclient config <hostname> | rocks report script | bash` the output script will be written in /root/wnclientConfigurator

In case OSG Client was not installed at kickstart, it is possible to install in a node or appliance after kickstart by setting OSG_Client to true on a host or appliance and then syncing as shown below

```
# rocks set host attr <hostname> OSG_Client value=true
# rocks sync host osg wnclient install <hostname>
```

To find information about Client configuration please see the OSG documentation at OSG twiki page for wnclient³ and for glexec⁴. Also for the 'pilot' option in OSG_wn_LcmapsCertType see more at this OSG twiki page⁵

4.8. Reconfiguring xrootd

A initial configuration of xrootd server is done during the kickstart install, the resulting configuration file is /etc/xrootd/xrootd-clustered.cfg. This configuration is based on available information at install. To reconfigure a xrootd node after changes on any attribute that build the .cfg file requires rebuild the configuration by running the rocks command.

```
# rocks sync host osg xrootd <hostname>
```

This will rewrite /etc/xrootd/xrootd-clustered.cfg



To view the script of changes for the files before making changes, use `rocks report host osg xrootd config <hostname>`



To generate the script, login on the xrootd node and run `rocks report host osg xrootd config <hostname> | rocks report script | bash` the output script will be written in /root/XrootdConfigurator

In case Xrootd was not installed at kickstart, it is possible to install in a node or appliance after kickstart by setting OSG_XRD to true on a host or appliance and then syncing as shown below

```
# rocks set host attr <hostname> OSG_XRD value=true
# rocks sync host osg xrootd install <hostname>
```

To find information about xrootd configuration please see the OSG documentation at OSG twiki page⁶.

4.9. Reconfiguring Condor after Installation

The configuration of Condor is done during the install, the resulting configuration files are located in /etc/condor/config.d/. To reconfigure Condor on a node, make appropriate attribute using the commands above and then run

```
# rocks sync host osg condor <hostname>
```

This will rewrite the 01_rocks_condor_config.local on the file and then calls the Condor command /usr/sbin/condor_reconfig



To view the contents of the 01_rocks_condor_config.local before making changes, use `rocks report host osg condor config <hostname>`

To find information about administrating and using Condor Pools please see the original Condor manual at Condor manuals⁷ or locally⁸.

4.10. Reconfiguring Hadoop after Installation

The configuration of Hadoop is done during the install, the resulting configuration file is /etc/sysconfig/hadoop. To reconfigure Hadoop on a node, make appropriate attribute using the commands above and then run

```
# rocks sync host osg hadoop <hostname>
```

This will rewrite the file /etc/sysconfig/hadoop and then calls the Hadoop command /root/HadoopConfigurator



To view the contents of the /etc/sysconfig/hadoop before making changes, use `rocks report host osg hadoop config <hostname>`

4.11. Reconfiguring Frontier Squid after Installation

The default customization of Squid is done during the install, the resulting configuration file is `/etc/squid/customize.sh`. To reconfigure squid on a node, make appropriate attribute using the commands above and then run

```
# rocks sync host osg squid <hostname>
```

This will rewrite the file `/etc/squid/customize.sh` then you can start the service with the command `service frontier-squid start`



To view the contents of the `/etc/squid/customize.sh` before making changes, use `rocks report host osg squid config <hostname>`

4.12. Reconfiguring CVMFS

The default customization of CVMFS is done at the OS install, the resulting configuration files are: `/etc/cvmfs/default.local`, `/etc/cvmfs/config.d/cms.cern.ch.local`, `/etc/cvmfs/domain.d/cern.ch.local` and `/etc/fuse.conf` To reconfigure cvmfs on a node, make appropriate attribute using the commands above and then run

```
# rocks sync host osg cvmfs <hostname>
```

In case cvmfs was not installed at kickstart, it is possible to install in a node or appliance after kickstart by setting `OSG_CVMFS` on a host or appliance and then syncing as shown below

```
# rocks set host attr <hostname> OSG_CVMFS value=true
# rocks sync host osg cvmfs install <hostname>
```

This will rewrite the above files then you can reload the service with the command `cvmfs_config reload`



To view the contents of the files `/etc/cvmfs/default.local`, `/etc/cvmfs/config.d/cms.cern.ch.local`, `/etc/cvmfs/domain.d/cern.ch.local` and `/etc/fuse.conf` before making changes, use `rocks report host osg cvmfs config <hostname>`

4.13. Reconfiguring RSV

The default customization of RSV is done at the OS install, if `OSG_RSV` was set to true, the resulting configuration files are: `/etc/osg/config.d/30-rsv.ini`, `/etc/httpd/conf/httpd.conf` and `/etc/httpd/conf.d/ssl.conf` The secure configuration will use certs located at `/etc/grid-security/http/httpcerts2.pem` (with key `httpkey2.pem`) with

ownership apache. To reconfigure rsv on a node, make appropriate attribute changes using the commands above and then run

```
# rocks sync host osg rsv <hostname>
```

This will rewrite the script `/root/rsv_iniConfigurator` and run it, then will run `"osg-configure -c"` to set rsv.

In case rsv was not installed at kickstart, it is possible to install in a node or appliance after kickstart by setting `OSG_RSV` on a host or appliance and then syncing as shown below

```
# rocks set host attr <hostname> OSG_RSV value=true
# rocks sync host osg rsv install <hostname>
# ssh <hostname> "cp -p /etc/grid-security/http/httpcert.pem /etc/grid-security/http/httpcert2.pem"
# ssh <hostname> "cp -p /etc/grid-security/http/httpkey.pem /etc/grid-security/http/httpkey2.pem"
# ssh <hostname> "chown apache. /etc/grid-security/http/http*2.pem"
```



To view the content of the new `/root/rsv_iniConfigurator` before making changes, use `rocks report host osg rsv config <hostname>`

4.14. Programatically changing the Contents of `01_rocks_condor_config.local`

Condor configuration is localized into `/etc/condor/config.d/01_rocks_condor_config.local`. This file is generated programatically from the output of `rocks report host osg condor config <hostname>`.

The command `rocks report host osg condor config` is defined by the OSG roll and is written in Python. This report command is extensible through Rocks command plugins.

To see a sample Condor plugin, view the file in location

`/opt/rocks/lib/python2.4/site-packages/rocks/commands/report/host/osg/condor/config/plugin_sample` which is reproduced here.

```
# $Id$
import rocks.commands

class Plugin(rocks.commands.Plugin):

    def provides(self):
        return 'sample'

    def run(self, argv):
        # Argv contains the hostname and the in memory key-value store
        # that is eventually written to
        # /etc/condor/config.d/01_rocks_condor_config.local
        # plugins can add/change/remove keys from the store

        # 1. Get the hostname and the key-value store, which
        #    is a python dictionary
```

```

host, kvstore = argv

# The following would add CONDOR_SAMPLE=Sample Plugin
# the key = value dictionary (kvstore) that is written out
#
# Example 1. Read an attribute from the database and set
# the values
value = self.db.getHostAttr(host, 'Condor_HostAllow')
kvstore['CONDOR_SAMPLE'] = value

# Example 2. Set the key CONDOR_SAMPLE to the hostname
kvstore['CONDOR_SAMPLE'] = host

# Example 3. Remove a key from the dictionary
if 'CONDOR_SAMPLE' in kvstore:
    del kvstore['CONDOR_SAMPLE']

RollName = "condor"

```

Users/Roll Developers can add their own plugins for the "report host condor config" command to overwrite, add, and/or delete key,value pairs that are written into /etc/condor/config.d/01_rocks_condor_config.local.

In the above code sample, the Condor report command driver passes the hostname and the dictionary of already defined key,value pairs (kvstore in the sample code). The sample code shows several different examples of changing the key 'CONDOR_SAMPLE'.

Plugins are written in Python, are called in random order, and must be named "plugin_<name>.py".

Plugins also enable any desired configurations to be properly applied with the command `rocks sync host osg condor config`.

Notes

1. https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallComputeElement#7_Configuration_Instructions
2. https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallOSGBestmanSE#4_1_Installing_BeStMan2
3. <https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallWNClient>
4. <https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallGlexec>
5. <https://twiki.opensciencegrid.org/bin/view/Documentation/Release3/GlexecPilotCert>
6. https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallXrootd#Modify_etc_xrootd_xrootd_cluster
7. <http://www.cs.wisc.edu/condor/manual>
8. condor-Manual

Chapter 5. Using the osg Roll

5.1. Example install CE server Automatic (condor)

ce-condor can be installed as follow.

```
$ su - root
#
###set public interface
#
#rocks set host interface ip ce-0-0 iface=eth1 ip=1.2.3.5
#rocks set host interface name ce-0-0 iface=eth1 name=rocks-ce
#rocks set host interface subnet ce-0-0 eth1 public
#rocks set host attr ce-0-0 primary_net public
#rocks add host route ce-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr ce-0-0 OSG_CE value="condor"
#rocks add host attr ce-0-0 OSG_Condor_Daemons value="MASTER, SCHEDD"
#
## Automatic throughout attributes (survive reinstalls)
## Example
## Attrs used to fill gip (only need to set one time)
#rocks add host attr ce-0-0 OSG_CE_gip_multicluster value=2
#rocks add host attr ce-0-0 OSG_CE_gip_SubCluster1 value="MyClusterID"
#rocks add host attr ce-0-0 OSG_CE_gip_ClusterName1 value="MyClusterName"
#rocks add host attr ce-0-0 OSG_CE_gip_SubCluster2 value="MyClusterID2"
#rocks add host attr ce-0-0 OSG_CE_gip_ClusterName2 value="MyClusterName2"
## more gip associated to having storage (assuming one SE)
#rocks add host attr ce-0-0 OSG_CE_gip_NmultiSE value=1
#rocks add host attr ce-0-0 OSG_CE_gip_SE1 value="MySE-ID"
#rocks add host attr ce-0-0 OSG_CE_gip_SE_OIM_Name1 value="your SE resource OIM registered"
#rocks add host attr ce-0-0 OSG_CE_gip_SEversion1 value="2.2.3.0-21"
#rocks add host attr ce-0-0 OSG_CE_gip_SEpath1 value="/mnt/hadoop/user/VONAME"
## Attrs used to fill siteinfo
#rocks add host attr ce-0-0 OSG_CE_siteinfo_sponsor value="uscms"
#rocks add host attr ce-0-0 OSG_CE_siteinfo_contact value="Your Admin Name"
#rocks add host attr ce-0-0 OSG_CE_siteinfo_email value="your_admin@mail.edu"
#rocks add host attr ce-0-0 OSG_CE_siteinfo_OIM_name value="your resource OIM registered"
#rocks add host attr ce-0-0 OSG_CE_siteinfo_OIM_group value="your resource group OIM registered"
#
##Set hostcert/hostkey
#rocks add host sec_attr ce-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=htpcert value="/path/to/cert/httpcert.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=htpkey value="/path/to/certkey/httpkey.pem" crypted=true
```

Choose either reinstall or live install + config

```
#
# reinstall
#
#shoot-node ce-0-0
#
# config after reinstall
# start htcondor before running CE configurator (osg-configure needs condor running)
#rocks run host ce-0-0 command='service condor start'
```

```
#
# fetch crls (osg-configure needs crls)
#rocks run host ce-0-0 command='fetch-crl'
#   run osg-configure
#   (or 'rocks sync host osg CE ce-0-0' if more attr were added after install)
#rocks run host ce-0-0 command='osg-configure -c'
#
```

live install + config option below.

```
#
# install + config using rocks commands
#
#rocks sync host osg CE install ce-0-0
#
# just in case a last minute or forgotten attr was set
#       then need to sync before continue.
#       rocks sync host attr ce-0-0
#
# install certs by sync sec_attrs
#rocks sync host sec_attr ce-0-0
#
# fix ownership for /etc/grid-security/http
#rocks run host ce-0-0 command='chown -R tomcat:tomcat /etc/grid-security/http'
#
# start htcondor before running CE configurator (osg-configure needs condor running)
#rocks run host ce-0-0 command='service condor start'
#
# fetch crls (osg-configure needs crls)
#rocks run host ce-0-0 command='fetch-crl'
# use attrs to rewrite ini files and run osg-configure
# (see file /root/CE_ini_filesConfigurator in your CE)
#rocks sync host osg CE ce-0-0
#
```

Post install (this can be put in a xml file)

```
#
# post install
#
# start gatekeeper
#rocks run host ce-0-0 command='service globus-gatekeeper start'
# start fetch-crl cron
#rocks run host ce-0-0 command='service fetch-crl-cron start'
#
# set services to run on reboot
#rocks run host ce-0-0 command='chkconfig condor on'
#rocks run host ce-0-0 command='chkconfig globus-gatekeeper on'
#rocks run host ce-0-0 command='chkconfig fetch-crl-cron on'
#rocks run host ce-0-0 command='chkconfig fetch-crl-boot on'
```

5.2. Example install CE server Semi-automatic (condor)

ce-condor can be installed as follow. This include manual steps.

```
$ su - root
#
###set public interface
#
#rocks set host interface ip ce-0-0 iface=eth1 ip=1.2.3.5
#rocks set host interface name ce-0-0 iface=eth1 name=rocks-ce
#rocks set host interface subnet ce-0-0 eth1 public
#rocks set host attr ce-0-0 primary_net public
#rocks add host route ce-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr ce-0-0 OSG_CE value="condor"
#rocks add host attr ce-0-0 OSG_Condor_Daemons value="MASTER, SCHEDD"
#
###Sample of customizing/changing attribute
#
#rocks set host attr ce-0-0 OSG_SRMsupportedProtocolList value="gsiftp://rocks-ce.mypublic.edu:28
#
###Set hostcert/hostkey(auto) httpcert/httpkey('manual')
#
#rocks add host sec_attr ce-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypted=true
#
###Set nsf shared dir where httpcert,httpkey are stored
###   in this example assuming stored at
###   /my/nfs/path/for/certs/ce-0-0/httpcert.pem
###   /my/nfs/path/for/certs/ce-0-0/httpkey.pem
#rocks set host attr ce-0-0 OSG_StoredCertsDir value="/my/nfs/path/for/certs"

#
### reinstall
#
#shoot-node ce-0-0

#
### post install
#
###Manual config
#edit for your site /etc/osg/config.d/30-gip.ini
#edit for your site /etc/osg/config.d/40-siteinfo.ini
#rocks run host ce-0-0 command='service condor start'
#rocks run host ce-0-0 command='configure-osg -v'
#rocks run host ce-0-0 command='configure-osg -c'

#rocks run host ce-0-0 command='chkconfig condor on'
#rocks run host ce-0-0 command='chkconfig globus-gatekeeper on'
#rocks run host ce-0-0 command='chkconfig fetch-crl-cron on'
#rocks run host ce-0-0 command='chkconfig fetch-crl-boot on'

#services for ce-condor
#rocks run host ce-0-0 command='service globus-gatekeeper start'
```

5.3. Example Install CE server (condor) + gridftp + rsv

ce-condor + gridftp + rsv can be installed as follow. (rsv is configured like in OSG 1.2)

```
$ su - root
#
###set public interface
#
#rocks set host interface ip ce-0-0 iface=eth1 ip=1.2.3.5
#rocks set host interface name ce-0-0 iface=eth1 name=rocks-ce
#rocks set host interface subnet ce-0-0 eth1 public
#rocks set host attr ce-0-0 primary_net public
#rocks add host route ce-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr ce-0-0 OSG_CE value="condor"
#rocks add host attr ce-0-0 OSG_Condor_Daemons value="MASTER, SCHEDD"
#
### gridftp attrs
#
#rocks add host attr ce-0-0 OSG_GRIDFTP value=true
#rocks set host attr ce-0-0 OSG_SRMsupportedProtocolList value="gsiftp://rocks-ce.mypublic.edu:28
#
### rsv attrs (use high http ports)
#
#rocks add host attr ce-0-0 OSG_RSV value=true
#rocks add host attr ce-0-0 OSG_RSV_Port value="8000"
#rocks add host attr ce-0-0 OSG_RSV_SPort value="8443"
#rocks add host attr ce-0-0 OSG_RSVSRMTestDir value="/tmp"
#
###Set hostcert/hostkey httpcert/httpkey rsvcert/rsvkey
#
#rocks add host sec_attr ce-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=httpcert value="/path/to/cert/httpcert.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=httpkey value="/path/to/certkey/httpkey.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=rsvcert value="/path/to/cert/rsvcert.pem" crypted=true
#rocks add host sec_attr ce-0-0 attr=rsvpkey value="/path/to/certkey/rsvkey.pem" crypted=true

#
# reinstall
#
#shoot-node ce-0-0

#
# post install
# (fetch-crl, osg-configure are run in rocks sync command)
#
#rocks run host ce-0-0 command='service condor start'
#rocks sync host osg CE ce-0-0

#services for gatekeeper(GRAM)
#rocks run host ce-0-0 command='service globus-gatekeeper start'
#services for gatekeeper(HTCONDOR-CE)
#rocks run host ce-0-0 command='service condor-ce start'
#services for gridftp
#rocks run host ce-0-0 command='service globus-gridftp-server start'
#services for rsv
#rocks run host ce-0-0 command='service condor-cron start'
```

```
#rocks run host ce-0-0 command='service rsv start'
#rocks run host ce-0-0 command='service httpd start'

#set services on boot
#rocks run host ce-0-0 command='chkconfig condor on'
#rocks run host ce-0-0 command='chkconfig globus-gatekeeper on'
#rocks run host ce-0-0 command='chkconfig condor-ce on'
#rocks run host ce-0-0 command='chkconfig fetch-crl-cron on'
#rocks run host ce-0-0 command='chkconfig fetch-crl-boot on'
#rocks run host ce-0-0 command='chkconfig globus-gridftp-server on'
#rocks run host ce-0-0 command='chkconfig condor-cron on'
#rocks run host ce-0-0 command='chkconfig rsv on'
```

5.4. Example Install bestman server + gridftp hadoop

Bestman can be installed as follow.

```
$ su - root
#
###set public interface
#
#rocks set host interface ip se-0-0 iface=eth1 ip=1.2.3.4
#rocks set host interface name se-0-0 iface=eth1 name=rocks-se
#rocks set host interface subnet se-0-0 eth1 public
#rocks set host attr se-0-0 primary_net public
#rocks add host route se-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr se-0-0 OSG_SE value=true
#rocks add host attr se-0-0 OSG_GFTP_HDFS value=true
###sample of customizing/changing attribute
#rocks set host attr se-0-0 OSG_SRMsupportedProtocolList value="gsiftp://rocks-se.mypublic.edu:28
###setting service certs
###rocks 5.5
# rocks add host sec_attr se-0-0 attr=hostcert value="'cat /path/to/cert/hostcert.pem'" crypte
# rocks add host sec_attr se-0-0 attr=hostkey value="'cat /path/to/certkey/hostkey.pem'" crypte
###rocks 5.6
# rocks add host sec_attr se-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypte=true
# rocks add host sec_attr se-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypte=true

#
### reinstall
#
#shoot-node se-0-0

#
### post install
#
#cp hostcert.pem and hostkey.pem to /root/.
#rocks sync host sec_attr se-0-0
#rocks run host se-0-0 command='/root/install_se_cert.sh'
#rocks run host se-0-0 command='chkconfig bestman2 on'
#rocks run host se-0-0 command='chkconfig globus-gridftp-server on'
```

5.5. Example Install xrootd server

xrootd can be installed as follow.

```
$ su - root
#
###set public interface
#
#rocks set host interface ip xrootd-0-0 iface=eth1 ip=1.2.3.4
#rocks set host interface name xrootd-0-0 iface=eth1 name=rocks-xrootd
#rocks set host interface subnet xrootd-0-0 eth1 public
#rocks set host attr xrootd-0-0 primary_net public
#rocks add host route xrootd-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr xrootd-0-0 OSG_XRD value=true
#
###site especific/changing default if needed (check defaults first)
#
# rocks set host attr xrootd-0-0 OSG_CMS_LOCAL_SITE value=T3_US_MySite
# rocks set host attr xrootd-0-0 OSG_GumsServer value="my.gums.server"
# rocks set host attr xrootd-0-0 OSG_XRDServer value="rocks-xrootd.server"
# rocks set host attr xrootd-0-0 OSG_XROOTD_LOCAL_REDIRECTOR value="my.redir.pool.server+"
#
###setting user cert path (needed to download CMS_LOCAL_SITE/PhEDEx/storage.xml )
#
# rocks add host attr xrootd-0-0 OSG_CMS_USERCERT value=/path/to/my/cert/usercert.pem
# rocks add host attr xrootd-0-0 OSG_CMS_USERKEY value=/path/to/my/cert/userkey.pem
#
###setting service certs
#
# rocks add host sec_attr xrootd-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypted=tr
# rocks add host sec_attr xrootd-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypted=t

#
### reinstall
#
#shoot-node xrootd-0-0

#
### post install
#
#check /root/cert-install.log
#rocks run host xrootd-0-0 command='chkconfig xrootd on'
#rocks run host xrootd-0-0 command='chkconfig cmsd on'
#rocks run host xrootd-0-0 command='service xrootd start'
#rocks run host xrootd-0-0 command='service cmsd start'
```

5.6. Example Install gums server

gums can be installed as follow.

```
$ su - root
#
###set public interface
#
#rocks set host interface ip gums-0-0 iface=eth1 ip=1.2.3.6
```

```

#rocks set host interface name gums-0-0 iface=eth1 name=rocks-gums
#rocks set host interface subnet gums-0-0 eth1 public
#rocks set host attr gums-0-0 primary_net public
#rocks add host route gums-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr gums-0-0 OSG_GUMS value=true
#
#
###sample of customizing/changing attribute
#rocks set host attr gums-0-0 OSG_GUMSBackupDir value=/home/myusers/mygumsbackups
#rocks set host attr gums-0-0 OSG_GUMSDNADMIN value="DN my grid"
###setting service certs (option 1 is preferred )
#option 1
# rocks add host sec_attr gums-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypted=true
# rocks add host sec_attr gums-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypted=tru
# rocks add host sec_attr gums-0-0 attr=httpcert value="/path/to/cert/httpcert.pem" crypted=true
# rocks add host sec_attr gums-0-0 attr=httpkey value="/path/to/certkey/httpkey.pem" crypted=tru
#option 2
#rocks set host attr gums-0-0 OSG_StoredCertsDir value="/my/nfs/path/for/certs"

#
# reinstall
#
#shoot-node gums-0-0

#
# post install
#
#for services gums
#https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallGums
#
#if upgrading from pacman in OSG_GUMSBackupDir
#     use backup names gum.config_pacman and gums_1_3.sql_pacman
# rocks run host gums-0-0 command='/root/ConfigureGumsUpgradeFromPacman.sh'
#
#if upgrading from rpm in OSG_GUMSBackupDir
#     use backup names gum.config_rpm and gums_1_3.sql_rpm
# rocks run host gums-0-0 command='/root/ConfigureGumsUpgradeFromRPM.sh'
#
#if fresh install (edit to set gums password)
# rocks run host gums-0-0 command='/root/ConfigureGumsFreshInstall.sh'
#
#rocks run host gums-0-0 command='fetch-crl'
#rocks run host gums-0-0 command='service fetch-crl-boot start'
#rocks run host gums-0-0 command='service fetch-crl-cron start'
#rocks run host gums-0-0 command='service tomcat6 start'
#rocks run host gums-0-0 command='chkconfig fetch-crl-cron on'
#rocks run host gums-0-0 command='chkconfig fetch-crl-boot on'
#rocks run host gums-0-0 command='chkconfig tomcat6 on'
#rocks run host gums-0-0 command='chkconfig mysqld on'

```

5.7. Example Install gums server + squid + cvmfs

gums + squid + cvmfs can be installed as follow.

```
$ su - root
#
###set public interface
#
#rocks set host interface ip gums-0-0 iface=eth1 ip=1.2.3.6
#rocks set host interface name gums-0-0 iface=eth1 name=rocks-gums
#rocks set host interface subnet gums-0-0 eth1 public
#rocks set host attr gums-0-0 primary_net public
#rocks add host route gums-0-0 0.0.0.0 1.2.3.1 netmask=0.0.0.0
#rocks add host attr gums-0-0 OSG_GUMS value=true
#rocks add host attr gums-0-0 OSG_SQUID value=true
#rocks add host attr gums-0-0 OSG_CVMFS value=true
#
#
###sample of customizing/changing attribute
# gums attrs
#rocks set host attr gums-0-0 OSG_GUMSBackupDir value=/home/myusers/mygumsbackups
#rocks set host attr gums-0-0 OSG_GUMSRunScript value=UpgradeFromRPM
# squid frontier attrs
#rocks set host attr gums-0-0 OSG_SquidCacheDir value=/scratch/squid
#rocks set host attr gums-0-0 OSG_SquidCacheDirSize value=30000
# cvmfs attrs
#rocks set host attr gums-0-0 OSG_CMS_LOCAL_SITE value=T3_US_MySite
#rocks set host attr gums-0-0 OSG_CVMFS_CACHE_BASE value=/scratch/cvmfs
#rocks set host attr gums-0-0 OSG_CVMFS_HTTP_PROXY value="http://gums-0-0:3128"
###setting service certs
###preferred method
# rocks add host sec_attr gums-0-0 attr=hostcert value="/path/to/cert/hostcert.pem" crypted=true
# rocks add host sec_attr gums-0-0 attr=hostkey value="/path/to/certkey/hostkey.pem" crypted=true
# rocks add host sec_attr gums-0-0 attr=hostcert value="/path/to/cert/httpcert.pem" crypted=true
# rocks add host sec_attr gums-0-0 attr=hostkey value="/path/to/certkey/httpkey.pem" crypted=true
###alternative
# rocks set host attr gums-0-0 OSG_StoredCertsDir value="/my/nfs/path/for/certs"

#
# reinstall
#
#shoot-node gums-0-0

#
# post install
#
#for services gums
#https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallGums
#rocks run host gums-0-0 command='fetch-crl'
#rocks run host gums-0-0 command='service fetch-crl-boot start'
#rocks run host gums-0-0 command='service fetch-crl-cron start'
#rocks run host gums-0-0 command='service tomcat6 start'
#rocks run host gums-0-0 command='chkconfig fetch-crl-cron on'
#rocks run host gums-0-0 command='chkconfig fetch-crl-boot on'
#rocks run host gums-0-0 command='chkconfig tomcat6 on'
#rocks run host gums-0-0 command='chkconfig mysqld on'
#
```

```
#services frontier squid
#https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallFrontierSquid
#rocks sync host osg squid gums-0-0
#rocks run host gums-0-0 command='service frontier-squid start'
#rocks run host gums-0-0 command='chkconfig frontier-squid on'
#
#services cvmfs
#https://twiki.grid.iu.edu/bin/view/Documentation/Release3/InstallCvmfs
#rocks run host gums-0-0 command='service autofs restart'
```

5.8. Example for installing cvmfs on wn nodes after OS install

Cvmfs can be installed as follow.

```
$ su - root
#
###sample of customizing/changing attribute
#
#rocks add appliance attr compute OSG_CVMFS value=true
#rocks set appliance attr compute OSG_CVMFS_QUOTA_LIMIT value=30000
#rocks set appliance attr compute OSG_CMS_LOCAL_SITE value=T3_US_MySite
#rocks set appliance attr compute OSG_CVMFS_CACHE_BASE value=/scratch/cvmfs
#rocks set appliance attr compute OSG_CVMFS_HTTP_PROXY value="http://mysquid-0-0:3128"
#
###install cvmfs on nodes
#rocks sync host osg cvmfs install compute
#rocks run host compute command="service autofs restart"
#
```

5.9. Example for setting hostproxy on wn nodes

Hostproxy requires access the whole cluster, you need to set a pair key or just reuse the frontend node. Also the certs used to proxy by default are located in /etc/grid-security (hostcert.pem,hostkey.pem).

```
#
#in frontend cp pair keys to ce-0-0
#
$ su - root
#scp -p .ssh/id_rsa ce-0-0:~/.ssh/.
#scp -p .ssh/id_rsa.pub ce-0-0:~/.ssh/.
#ssh ce-0-0

#
# in ce-0-0
#
#yum install hostproxy
#cd /opt/hostproxy

#
# set list of worker nodes
```

```
#
#rocks report host attr attr=OSG_Client | grep true | sed s/:\ true/.local/g >> host_dist.nodes

#
# set cron to renew proxys
#
#cp update-hostproxy.cron /etc/cron.d/.

#
# or run manually
#
#/opt/hostproxy/host_dist
```

5.10. How to Update OSG packages

OSG can be updated creating a local mirror as follow.

```
$ su - root
#cd /export/rocks/install
#rocks create mirror http://repo.grid.iu.edu/3.0/el5/osg-release/x86_64 rollname=osg-updates vers
##this creates an iso file osg-updates-5.5.1-0.x86_64.disk1.iso

#rocks remove roll osg-updates
#rocks add roll osg-updates-5.5.1-0.x86_64.disk1.iso
#rocks enable roll osg-updates
#rocks create distro

#in SE for example
yum update bestman-server
```

5.11. How to Backup GUMS DB packages

GUMS server can be backed up by cloning gums.config and dumping GUMS table as follow.

```
#login to your GUMS server
#assuming OSG_GUMSBackupDir attr set to '/home/myusers/mygumsbackup'
$ su - root

#cp -p /etc/gums/gums.config /home/myusers/mygumsbackup/gums.config_rpm
#mysqldump GUMS_1_3 > /home/myusers/mygumsbackup/gums_1_3.sql_rpm
```

For recovery after installing gums server run script /root/ConfigureGumsUpgradeFromRPM.sh as shown in Example Install standalone gums server or follow automatization by setting attr 'OSG_GUMSRunScript' as shown in Example Install GUMS server + SQUID + CVMFS.

5.12. Using a pool password to secure Condor Communications

The default Rocks configuration is to use host-based authentication. This is a good and simple choice for a cluster with a private network. With the Rocks 5.4 version of the Condor Roll, it is straightforward to set up a "Pool Password" that utilizes a shared secret among pool members. This is especially useful when allowing remote systems to report directly to the Condor collector on your cluster. The EC2 Roll can utilize a pool password for a higher security.

The following, straightforward will create, copy and enable a system-wide shared-secret pool password.

1. Create a pool password. Use `rocks create osg condor password`
2. Enable pool password security. Use `rocks set attr OSG_Condor_Password yes`
3. Reconfigure Condor Daemons and copy new pool password. Use `rocks sync host osg condor syncpassword=yes localhost compute`

Chapter 6. Command Reference

6.1. create

6.1.1. create osg condor password

rocks create osg condor password [add=*bool*] [keyfile=*string*]

Create a pool password for Condor. Requires Condor Credd to be up and running.

parameters

[add=*bool*]

add the newly created key to the condor credential daemon. Default: yes

[keyfile=*string*]

The filename that will be used to store the password. Default: /var/lib/condor/pool_password

6.1.2. create osg download

rocks create osg download {path} [arch=*string*] [version=*string*]

Download the OSG packages found in the repository located at 'URL'.

arguments

path

The network location of the repository of packages.

parameters

[arch=*string*]

Architecture of the mirror to download. (default = the architecture of the OS running on this machine).

[version=*string*]

The OS version number to download. (default = the version of Rocks running on this machine).

examples

```
# rocks create osg download http://repo.grid.iu.edu/osg/3.1/el6/release/x86_64 version=6.5 arch=x86_64
```

Will mirror(download) all the packages found under the URL

http://repo.grid.iu.edu/osg/3.1/el6/release/x86_64 and will create a tree of dirs 6/x86_64 6/noarch 6/debug with latest version of osg packages ready to create osg roll.

6.2. report

6.2.1. report host osg CE config

rocks report host osg CE config {host} [ConfigCondor=*string*] [ConfigFile=*string*] [ConfigGip=*string*] [ConfigManagedFork=*string*] [ConfigMisc=*string*] [ConfigNetwork=*string*] [ConfigSGE=*string*] [ConfigSiteInfo=*string*] [ConfigSquid=*string*] [ConfigStorage=*string*] [test=*bool*]

Output the OSG CE Local Configuration Script Uses Rocks Attributes: OSG_CE, OSG_CEServer, OSG_SEServer, OSG_SquidServer, OSG_GumsServer, OSG_GlobusTcpSourceRange, OSG_GlobusTcpPortRange, OSG_CE_Mount_ShareDir, OSG_CE_DataDir, OSG_WN_TmpDir, OSG_GFTPServer, Info_ClusterName, OSG_CE_gip_multicluster, OSG_CE_gip_NmultiSE, OSG_CE_gip_SubCluster1, OSG_CE_gip_ClusterName1, OSG_CE_gip_NumberOfNodes1, OSG_CE_gip_mb_of_Ram1, OSG_CE_gip_cpu_speed1, OSG_CE_gip_arch1, OSG_CE_gip_CpusPerNode1, OSG_CE_gip_CoresPerNode1, OSG_CE_gip_inbound1, OSG_CE_gip_outbound1, OSG_CE_gip_SE1, OSG_CE_gip_SE_OIM_Name1, OSG_CE_gip_SEServer1, OSG_CE_gip_SEprovider1, OSG_CE_gip_SEimplementation1, OSG_CE_gip_SEversion1, OSG_CE_gip_SEpath1, OSG_CE_gip_OSG_CE_siteinfo_group, OSG_CE_siteinfo_OIM_name, OSG_CE_siteinfo_OIM_group, OSG_CE_siteinfo_sponsor, OSG_CE_siteinfo_policy, OSG_CE_siteinfo_contact, OSG_CE_siteinfo_email, OSG_CE_siteinfo_city, OSG_CE_siteinfo_country, OSG_CE_siteinfo_longitude, OSG_CE_siteinfo_latitude, Info_ClusterLatlong

arguments

host

One host name.

parameters

[ConfigCondor=*string*]

Defaults to: /etc/osg/config.d/20-condor.ini

[ConfigFile=*string*]

Defaults to: /root/CE_ini_filesConfigurator

[ConfigGip=*string*]

Defaults to: /etc/osg/config.d/30-gip.ini

[ConfigManagedFork=*string*]

Defaults to: /etc/osg/config.d/15-managedfork.ini

[ConfigMisc=*string*]

Defaults to: /etc/osg/config.d/10-misc.ini

[ConfigNetwork=*string*]

Defaults to: /etc/osg/config.d/40-network.ini

[ConfigSGE=*string*]

Defaults to: /etc/osg/config.d/20-sge.ini

[ConfigSiteInfo=*string*]

Defaults to: /etc/osg/config.d/40-siteinfo.ini

[ConfigSquid=*string*]

Defaults to: /etc/osg/config.d/01-squid.ini

[ConfigStorage=*string*]

Defaults to: /etc/osg/config.d/10-storage.ini

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
$ rocks report host osg CE config ce-0-0 ConfigGip="/etc/osg/config.d/30-gip.ini.test"
```

Set the OSG Gip Configuration File for ce-0-0 as /etc/osg/config.d/30-gip.ini.test

6.2.2. report host osg CE install

```
rocks report host osg CE install {host}
```

Output the OSG CE wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg CE install ce-0-0
```

Create wrapper script to install OSG CE for ce-0-0

6.2.3. report host osg bestman config

```
rocks report host osg bestman config
```

```
{host} [ConfigFile=string] [ConfigRCFile=string] [ConfigSysconfig=string] [test=bool]
```

Output the OSG Bestman Local Configuration Script Uses Rocks Attributes: OSG_SE, OSG_GumsServer, OSG_SRMlocalPathListAllowed, OSG_SRMsupportedProtocolList, OSG_SRMuseplugging, OSG_GlobusTcpSourceRange, OSG_GlobusTcpPortRange

arguments

host

One host name.

parameters

[ConfigFile=*string*]

Defaults to: /root/BestmanConfigurator

[ConfigRCFile=*string*]

Defaults to: /etc/bestman2/conf/bestman2.rc

[ConfigSysconfig=*string*]

Defaults to: /etc/sysconfig/bestman2

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
$ rocks report host osg bestman config se-0-0 ConfigRCFile="/etc/bestman2/conf/bestman2.rc.test"
```

Set the OSG RC Configuration File for se-0-0 as /etc/bestman2/conf/bestman2.rc.test

6.2.4. report host osg bestman install

```
rocks report host osg bestman install {host}
```

Output the OSG bestman wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg bestman install se-0-0
```

Create wrapper script to install OSG SE (bestman) for se-0-0

6.2.5. report host osg condor config

```
rocks report host osg condor config {host} [ConfigFile=string] [UIDdomain=string] [type=string]
```

Output the OSG Condor Local Configuration Uses Rocks Attributes: OSG_Condor_Master, OSG_Condor_MasterNetwork, OSG_Condor_ClientNetwork, Kickstart_PrivateDNSDomain

arguments

host

One host name.

parameters

[ConfigFile=*string*]

Defaults to: /etc/condor/config.d/01_rocks_condor_config.local

[UIDdomain=*string*]

Override UIDdomain of the Rocks Kickstart_PrivateDNSDomain attribute

[type=*string*]

How this node will function - [Manager, Worker] - Default: Worker

examples

```
$ rocks report host osg condor config compute-0-0 type=Worker
```

Create the OSG Condor Configuration for compute-0-0 as a Worker Node

6.2.6. report host osg condor install

```
rocks report host osg condor install {host}
```

Output the OSG condor wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg condor install node-0-0
```

Create wrapper script to install OSG condor for node-0-0

6.2.7. report host osg condor interface

```
rocks report host osg condor interface {host} {subnet}
```

Output the host IP address associated with a named subnet on a particular host.

arguments

host

One host name.

subnet

subnet to match

examples

```
$ rocks report host osg condor interface compute-0-0 private
```

Output the the IP Address of the private interface on compute-0-0. Suitable for using in OSG Condor Configuration Files

```
$ rocks report host osg condor interface vm-container-0-0 private
```

Output the the IP Address of the private interface on vm-container-0-0. If multiple interfaces are attached to the private interface (e.g. VLAN bridges) pick the interface with a configured address in the named subnet.

6.2.8. report host osg cvmfs config**rocks report host osg cvmfs config**

```
{host} [CMSConfigFile=string] [CVMFSServerConfigFile=string] [ConfigFile=string]
```

Output the OSG cvmfs Configuration Uses Rocks Attributes: OSG_CVMFS_REPOSITORIES, OSG_CVMFS_CACHE_BASE, OSG_CVMFS_QUOTA_LIMIT, OSG_CVMFS_HTTP_PROXY, OSG_CMS_LOCAL_SITE, OSG_CVMFS_SERVER_URL, OSG_CVMFS_NFS_SOURCE, OSG_CVMFS_MEMCACHE_SIZE

arguments

host

One host name.

parameters

```
[CMSConfigFile=string]
```

Defaults to: /etc/cvmfs/config.d/cms.cern.ch.local

```
[CVMFSServerConfigFile=string]
```

Defaults to: /etc/cvmfs/domain.d/cern.ch.local

```
[ConfigFile=string]
```

Defaults to: /etc/cvmfs/default.local

examples

```
$ rocks report host osg cvmfs config compute-0-0
```

Create/Modify the OSG cvmfs Configuration for compute-0-0

```
$ rocks report host osg cvmfs config compute-0-0 ConfigFile=/etc/cvmfs/test.local
```

Create the OSG cvmfs Configuration for compute-0-0 on files /etc/cvmfs/test.local, /etc/cvmfs/config.d/cms.cern.ch.local and /etc/cvmfs/domain.d/cern.ch.local

```
$ rocks report host osg cvmfs config compute-0-0 ConfigFile=/etc/cvmfs/test.local
```

```
CVMFSServerConfigFile=/etc/cvmfs/CvmfsServerTest.local
```

Create the OSG cvmfs Configuration for compute-0-0 on files /etc/cvmfs/test.local, /etc/cvmfs/config.d/cms.cern.ch.local and /etc/cvmfs/CvmfsServerTest.local

6.2.9. report host osg cvmfs install

```
rocks report host osg cvmfs install {host}
```

Output the OSG cvmfs wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg cvmfs install compute-0-0
```

Create wrapper script to install OSG cvmfs for compute-0-0

6.2.10. report host osg hadoop config

```
rocks report host osg hadoop config {host} [ConfigFile=string]
```

Output the OSG Hadoop Local Configuration Uses Rocks Attributes: OSG_HadoopNameNode, OSG_HadoopDataDir, OSG_HadoopData, OSG_HadoopSecondaryNode, OSG_HadoopCheckPointDirs, OSG_HadoopCheckPointPeriod, OSG_HadoopReplicationDefault, OSG_HadoopUpdateFstab, ganglia_address, Kickstart_PrivateDNSDomain

arguments

host

One host name.

parameters

```
[ConfigFile=string]
```

Defaults to: /etc/sysconfig/hadoop

examples

```
$ rocks report host osg hadoop config compute-0-0
```

Create the OSG Hadoop Configuration for compute-0-0

```
$ rocks report host osg hadoop config compute-0-0 ConfigFile=/etc/sysconfig/hadooptest
```

Create the OSG Hadoop Configuration for compute-0-0 on file /etc/sysconfig/hadooptest

6.2.11. report host osg hadoop install

```
rocks report host osg hadoop install {host}
```

Output the OSG hadoop wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg hadoop install hadoop-0-0
```

Create wrapper script to install OSG hadoop for hadoop-0-0

6.2.12. report host osg hadoop upgrade

```
rocks report host osg hadoop upgrade {host}
```

Output the OSG hadoop wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg hadoop upgrade hadoop-0-0
```

Create wrapper script to upgrade OSG hadoop for hadoop-0-0

6.2.13. report host osg installation

```
rocks report host osg installation [host...]
```

Report the current boot installation for hosts. For each host supplied on the command line, this command prints the hostname, boot action and installation for that host. The boot action describes what the host will do the next time it is booted. The installation describes which installation will be used.

arguments

[host]

Zero, one or more host names. If no host names are supplied, info about all the known hosts is listed.

examples

```
$ rocks report host osg installation compute-0-0
```

List the current boot action and installation for compute-0-0.

```
$ rocks report host osg installation
```

List the current boot action and installation for all known hosts.

6.2.14. report host osg rsv config

```
rocks report host osg rsv config {host} [ConfigFile=string] [ConfigRsv=string] [test=bool]
```

Output the OSG rsv Local Configuration Script Uses Rocks Attributes: OSG_RSV, OSG_RSV_Port, OSG_RSV_SPort

arguments

host

One host name.

parameters

[ConfigFile=*string*]

Defaults to: /root/rsv_iniConfigurator

[ConfigRsv=*string*]

Defaults to: /etc/osg/config.d/30-rsv.ini

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
$ rocks report host osg rsv config rsv-0-0 ConfigRsv="/etc/osg/config.d/30-rsv.ini.test"
```

Set the OSG rsv Configuration ini File for rsv-0-0 as /etc/osg/config.d/30-rsv.ini.test

6.2.15. report host osg rsv install

rocks report host osg rsv install {host}

Output the OSG rsv wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg rsv install rsv-0-0
```

Create wrapper script to install OSG rsv for rsv-0-0

6.2.16. report host osg squid config

rocks report host osg squid config {host} [ConfigFile=*string*]

Output the OSG frontier squid Local Configuration Uses Rocks Attributes: Kickstart_PublicNetmaskCIDR, Kickstart_PublicNetwork, Kickstart_PrivateNetmaskCIDR, Kickstart_PrivateNetwork, OSG_SquidCacheMem, OSG_SquidCacheDir, OSG_SquidCacheDirSize

arguments

host

One host name.

parameters

[ConfigFile=*string*]

Defaults to: /etc/squid/customize.sh

examples

```
$ rocks report host osg squid config squid-0-0
```

Create/Modify the OSG frontier squid Configuration for squid-0-0

```
$ rocks report host osg squid config squid-0-0 ConfigFile=/etc/squid/test.sh
```

Create the OSG frontier squid Configuration for squid-0-0 on file /etc/squid/test.sh

6.2.17. report host osg wnclient config

rocks report host osg wnclient config

{host} [ConfigCacert=*string*] [ConfigFile=*string*] [ConfigLcmaps=*string*] [test=*bool*]

Output the OSG wnclient Configuration Script Uses Rocks Attributes: OSG_Client, OSG_CE_Mount_ShareDir, OSG_GumsServer, OSG_wn_Cacert, OSG_wn_LcmappingsCertType

arguments

host

One host name.

parameters

[ConfigCacert=*string*]

Defaults to: /etc/grid-security/certificates

[ConfigFile=*string*]

Defaults to: /root/wnclientConfigurator

[ConfigLcmappings=*string*]

Defaults to: /etc/lcmappings.db

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
$ rocks report host osg wnclient config compute-0-0 ConfigLcmappings="/etc/lcmappings.db.test"
```

Set the OSG wnclient Configuration lcmappings.db for compute-0-0 as /etc/lcmappings.db.test

6.2.18. report host osg wnclient install

```
rocks report host osg wnclient install {host}
```

Output the OSG worker client wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg wnclient install compute-0-0
```

Create wrapper script to install OSG client for compute-0-0

6.2.19. report host osg xrootd config

rocks report host osg xrootd config {host} [ConfigFile=*string*] [ConfigXrootd=*string*] [test=*bool*]

Output the OSG xrootd Local Configuration Script Uses Rocks Attributes: OSG_XRD, OSG_XROOTD_LOCAL_REDIRECTOR, OSG_XROOTD_REGIONAL_REDIRECTOR, OSG_CMS_LOCAL_SITE

arguments

host

One host name.

parameters

[ConfigFile=*string*]

Defaults to: /root/XrootdConfigurator

[ConfigXrootd=*string*]

Defaults to: /etc/xrootd/xrootd-clustered.cfg

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
$ rocks report host osg xrootd config xrootd-0-0 ConfigXrootd="/etc/xrootd/xrootd.cfg.test"
```

Set the OSG xrootd Configuration File for xrootd-0-0 as /etc/xrootd/xrootd.cfg.test

6.2.20. report host osg xrootd install

rocks report host osg xrootd install {host}

Output the OSG xrootd wrapper install script

arguments

host

One host name.

examples

```
$ rocks report host osg xrootd install xrootd-0-0
```

Create wrapper script to install OSG xrootd for xrootd-0-0

6.3. sync

6.3.1. sync host osg CE

rocks sync host osg CE [test=*bool*]

Reconfigure OSG CE ini files on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg CE ce-0-0
```

Write and run script /root/CE_ini_filesConfigurator to rewrite inifiles and call osg-configure -c on host ce-0-0

6.3.2. sync host osg CE install

rocks sync host osg CE install [test=*bool*]

Install OSG CE on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg CE install ce-0-0
```

add tomcat user, add tomcat group, add gratia group and install osg-ce-certs, osg-ce-"OSG_CE", globus-gram-job-manager-managedfork on host ce-0-0 if attr OSG_CE is set in this host.

```
# rocks sync host osg CE install ce-0-0 test=yes
```

Show the bash script that will run to install osg-ce-"OSG_CE" on host ce-0-0

6.3.3. sync host osg bestman

rocks sync host osg bestman [test=*bool*]

Reconfigure Bestman server on the named hosts.

parameters

[test=boolean]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg bestman se-0-0
```

Write and run script /root/BestmanConfigurator to rewrite /etc/bestman2/conf/bestman2.rc and /etc/sysconfig/bestman2 on host se-0-0

6.3.4. sync host osg bestman install

rocks sync host osg bestman install [test=boolean]

Install Bestman on the named hosts.

parameters

[test=boolean]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg bestman install se-0-0
```

add bestman user, add bestman group, add gratia group and install osg-ce-certs and bestman-server rpms on host se-0-0 if attr OSG_SE is set on host.

```
# rocks sync host osg bestman install se-0-0 test=yes
```

Show the bash script that will run to install bestman-server on host se-0-0

6.3.5. sync host osg condor

rocks sync host osg condor [syncpassword=boolean] [test=boolean]

Reconfigure OSG Condor daemon on the named hosts.

parameters

[syncpassword=boolean]

If set and the attribute OSG_Condor_PasswordAuth is True, this will will copy the condor pool password the the host. Default is no.

[test=boolean]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg condor compute-0-0
```

Rewrite /etc/condor/config.d/01_rocks_condor_config.local and call condor_reconfigure on host compute-0-0

```
# rocks sync host osg condor compute-0-0 syncpassword=yes
```

Rewrite /etc/condor/config.d/01_rocks_condor_config.local, copy the OSG Condor pool password file if OSG_Condor_PasswordAuth host attribute is set, and finally call condor_reconfigure on host compute-0-0

6.3.6. sync host osg condor install

```
rocks sync host osg condor install [test=bool]
```

Install condor on the named hosts.

parameters

```
[test=bool]
```

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg condor install node-0-0
```

add condor user, add condor group, and install condor rpms on host node-0-0 if attr OSG_Condor_Client is set on host or OSG_CE is set to 'condor' on host.

```
# rocks sync host osg condor install node-0-0 test=yes
```

Show the bash script that will run to install condor on host node-0-0

6.3.7. sync host osg cvmfs

```
rocks sync host osg cvmfs [test=bool]
```

Configure/Reconfigure OSG cvmfs on the named hosts.

parameters

```
[test=bool]
```

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg cvmfs compute-0-0
```

Rewrites /etc/cvmfs/default.local, /etc/cvmfs/config.d/cms.cern.ch.local, /etc/cvmfs/domain.d/cern.ch.local, /etc/fuse.conf, on host compute-0-0 if attr OSG_CVMFS is set in this host.

```
# rocks sync host osg cvmfs compute-0-0 test=yes
```

Show the bash script that will run to rewrite the four config files on host compute-0-0

6.3.8. sync host osg cvmfs install

```
rocks sync host osg cvmfs install [test=bool]
```

Install OSG cvmfs on the named hosts.

parameters

```
[test=bool]
```

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg cvmfs install compute-0-0
```

add cvmfs user, add cvmfs group, add fuse group and install cvmfs on host compute-0-0 if attr OSG_CVMFS is set in this host.

```
# rocks sync host osg cvmfs install compute-0-0 test=yes
```

Show the bash script that will run to install cvmfs on host compute-0-0

6.3.9. sync host osg hadoop

```
rocks sync host osg hadoop [test=bool]
```

Reconfigure OSG Hadoop on the named hosts.

parameters

```
[test=bool]
```

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg hadoop compute-0-0
```

Rewrite /etc/sysconfig/hadoop and call hadoop firstboot on host compute-0-0

```
# rocks sync host osg hadoop test=yes compute-0-0
```

Show the bash script that will run to rewrite /etc/sysconfig/hadoop on host compute-0-0

6.3.10. sync host osg hadoop install

rocks sync host osg hadoop install [test=*bool*]

Install hadoop on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg hadoop install node-0-0
```

add hdfs user, add hadoop group, and install hadoop rpms on host node-0-0 if attr OSG_HADOOP is set on host or OSG_CE is set to 'condor' on host.

```
# rocks sync host osg hadoop install node-0-0 test=yes
```

Show the bash script that will run to install hadoop on host node-0-0

6.3.11. sync host osg hadoop upgrade

rocks sync host osg hadoop upgrade [test=*bool*]

Upgrade hadoop to OSG3.2 on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg hadoop upgrade node-0-0
```

add hdfs user, add hadoop group, and install hadoop rpms on host node-0-0 if attr OSG_HADOOP is set on host or OSG_CE is set to 'condor' on host.

```
# rocks sync host osg hadoop upgrade node-0-0 test=yes
```

Show the bash script that will run to install/upgrade hadoop on host node-0-0

6.3.12. sync host osg rsv

rocks sync host osg rsv [test=*bool*]

Reconfigure OSG RSV ini file on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg rsv rsv-0-0
```

Write and run script /root/rsv_iniConfigurator to rewrite inifiles and call osg-configure -c on host rsv-0-0

6.3.13. sync host osg rsv install

rocks sync host osg rsv install [test=*bool*]

Install OSG RSV on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg rsv install rsv-0-0
```

add tomcat, gratia, cndrcron, rsv users and install rsv on host rsv-0-0 if attr OSG_RSV is set to true in this host.

```
# rocks sync host osg rsv install rsv-0-0 test=yes
```

Show the bash script that will run to install rsv on host rsv-0-0

6.3.14. sync host osg squid

rocks sync host osg squid [test=*bool*]

Reconfigure OSG Frontier Squid on the named hosts.

parameters

[test=*bool*]

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg squid squid-0-0
```

Rewrites /etc/squid/customize.sh on host squid-0-0 if attr OSG_SQUID is set in this host.

```
# rocks sync host osg squid squid-0-0 test=yes
```

Show the bash script that will run to rewrite /etc/squid/customize.sh on host squid-0-0

6.3.15. sync host osg wnclient

```
rocks sync host osg wnclient [test=bool]
```

Reconfigure OSG wnClient on the named hosts.

parameters

```
[test=bool]
```

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg wnclient compute-0-0
```

Write and run script /root/wnclientConfigurator on host compute-0-0

6.3.16. sync host osg wnclient install

```
rocks sync host osg wnclient install [test=bool]
```

Install OSG Client on the named hosts.

parameters

```
[test=bool]
```

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg wnclient install compute-0-0
```

add glxexec, gratia, condor, users and install osg-wnclient-glxexec on host compute-0-0 if attr OSG_Client is set to true in this host.

```
# rocks sync host osg wnclient install compute-0-0 test=yes
```

Show the bash script that will run to install wnclient on host compute-0-0

6.3.17. sync host osg xrootd

```
rocks sync host osg xrootd [test=bool]
```

Reconfigure xrootd server on the named hosts.

parameters`[test=bool]`

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg xrootd xrootd-0-0
```

Write and run script `/root/XrootdConfigurator` to rewrite `/etc/xrootd/xrootd-clustered.cfg` on host `xrootd-0-0`

6.3.18. sync host osg xrootd install

```
rocks sync host osg xrootd install [test=bool]
```

Install xrootd on the named hosts.

parameters`[test=bool]`

If want to test output set this parameter. Default is no.

examples

```
# rocks sync host osg xrootd install xrootd-0-0
```

add xrootd user, add xrootd group, add gratia group and install `osg-ce-certs` and `cms-xrootd-hdfs` rpms on host `xrootd-0-0` if attr `OSG_XRD` is set on host.

```
# rocks sync host osg xrootd install xrootd-0-0 test=yes
```

Show the bash script that will run to install `xrootd-server` on host `xrootd-0-0`

6.3.19. sync osg condor

```
rocks sync osg condor
```

This command is syntactic sugar for `"rocks sync host osg condor localhost"`

examples

```
# rocks rocks sync osg condor
```

Rebuild the Condor Configuration

Chapter 7. Copyrights

7.1. Your title here

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